

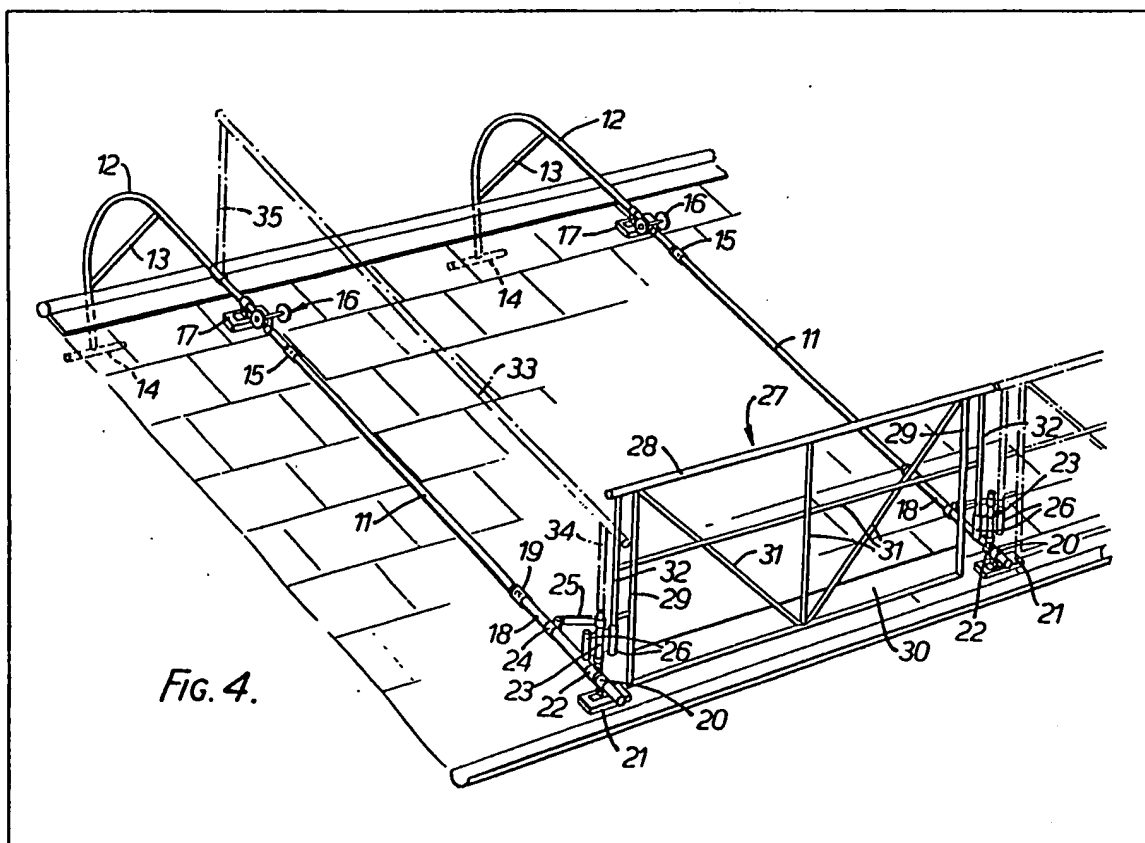
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(54) Roof scaffolding

(57) A roof scaffolding intended to provide protection at the open edge of a roof, especially a ridge roof, includes a pair of spaced apart leg members (11), having ridge hooks (12) attached to their upper ends, and support members (23) pivoted adjacent their lower ends for supporting substantially vertically a toeboard (30) and a handrail (28) which may be combined in a single unit (27). The scaffolding is easily assembled by mounting the leg members in position and then lifting the handrail and toeboard into position between them.



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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

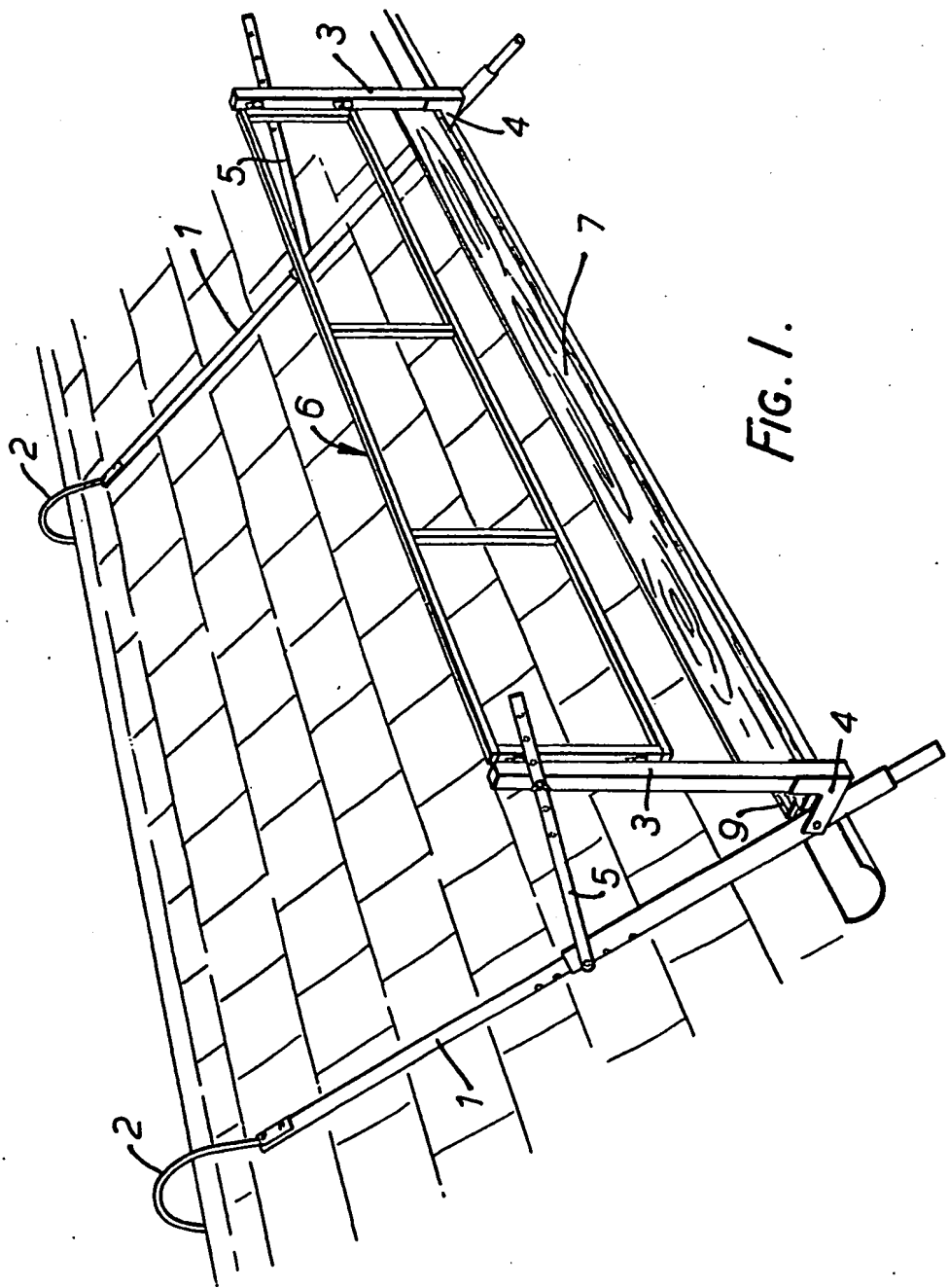


FIG. 1.

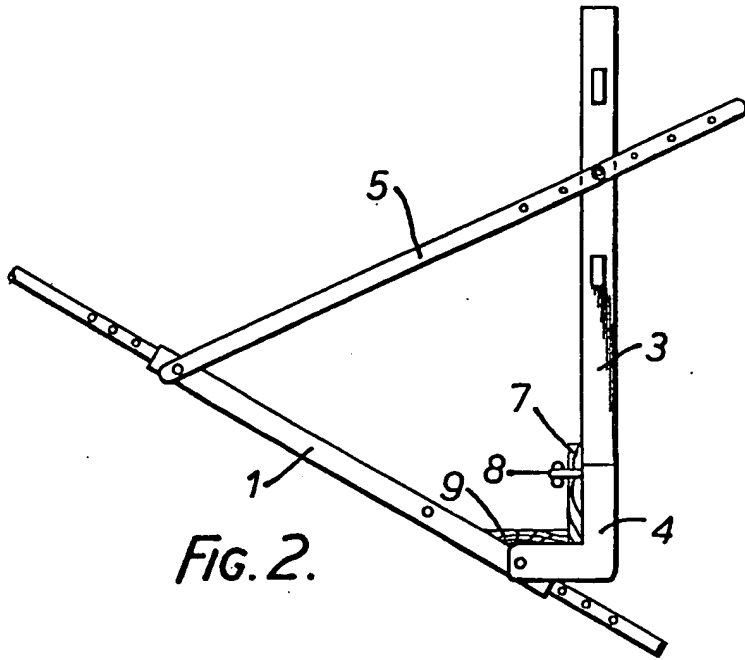


FIG. 2.

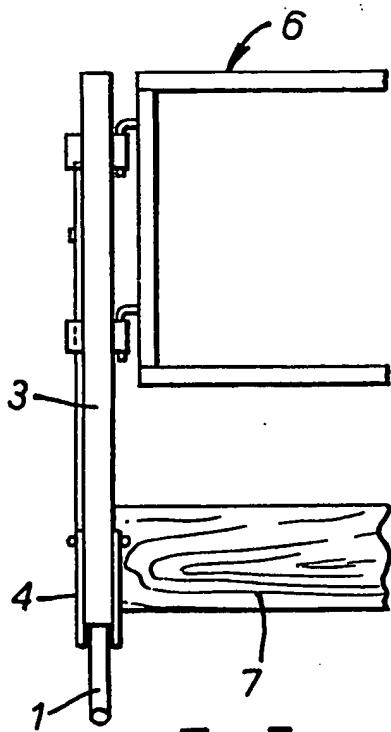


FIG. 3.

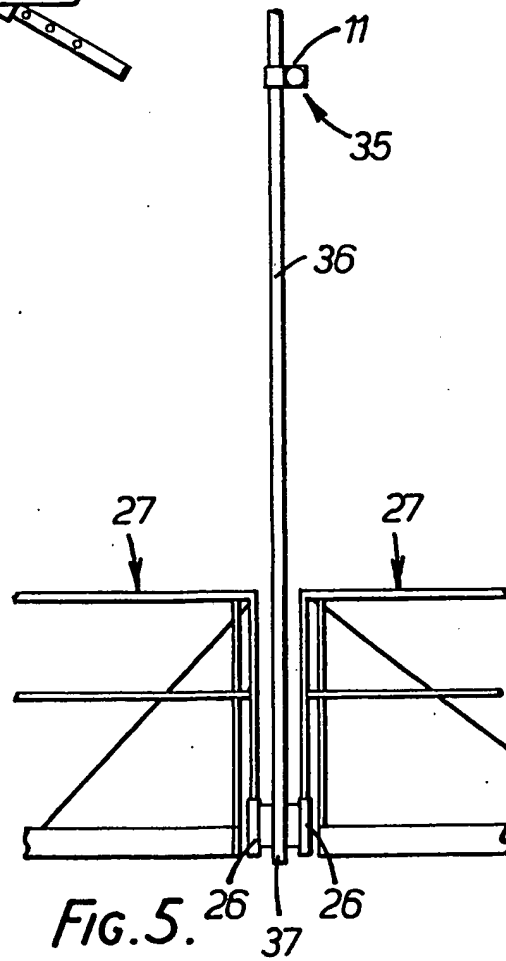


FIG. 5.

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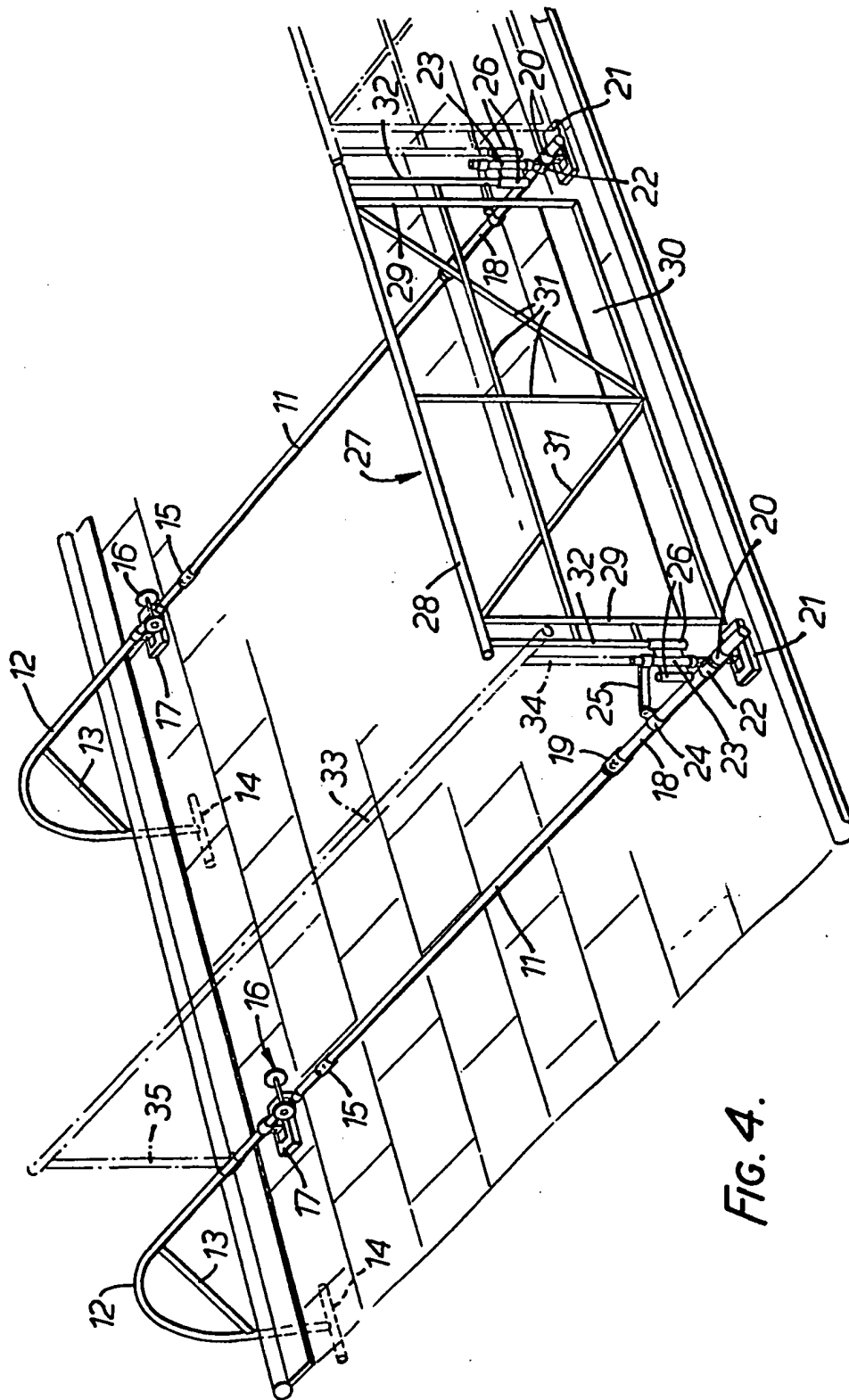
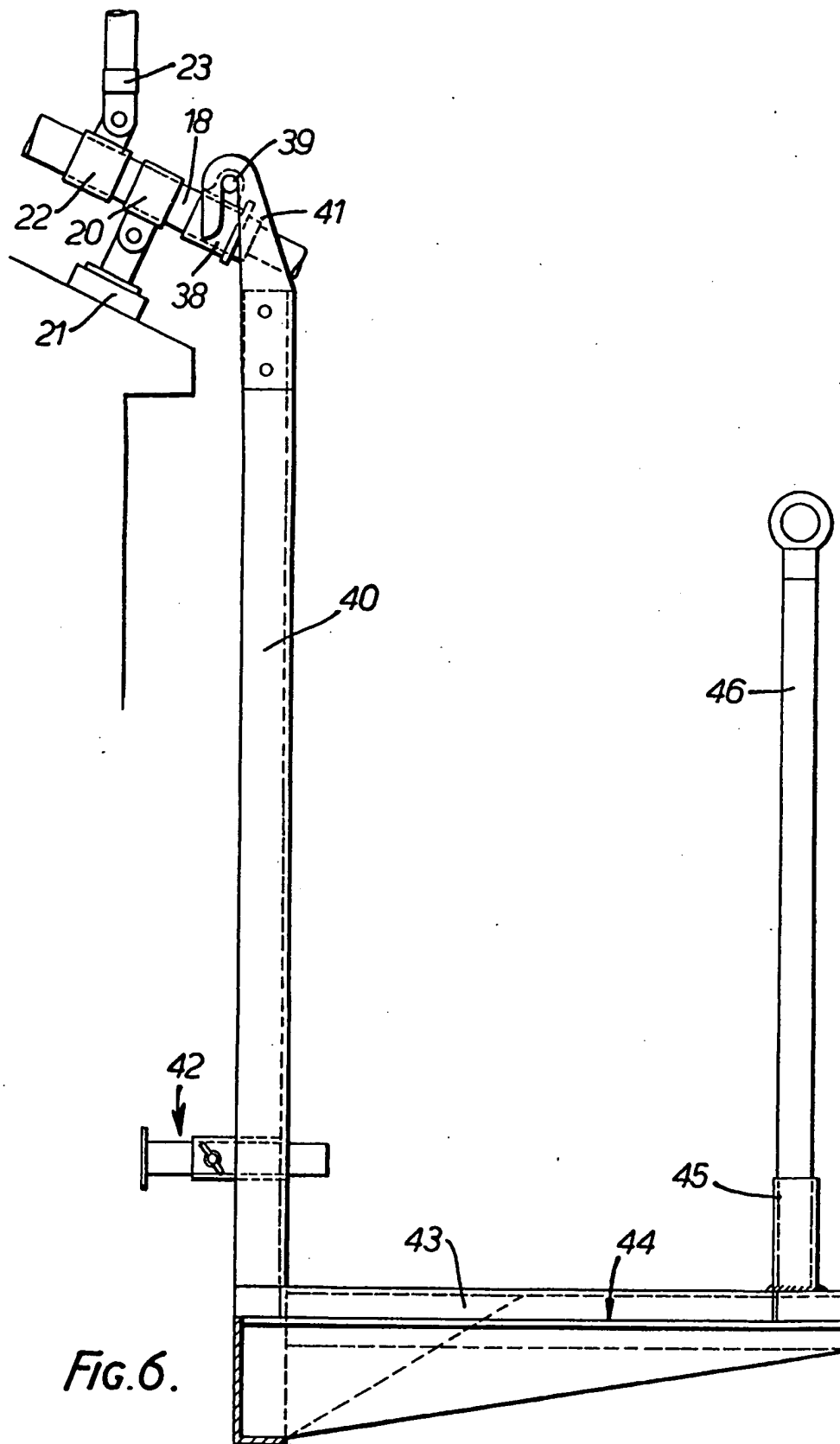


FIG. 4.

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SPECIFICATION R of scaffolding

This invention relates to a roof scaffolding. The scaffolding of the invention may be used on flat roofs, but is particularly suitable for use on ridge roofs. For this purpose of this specification the term "ridge roof" is intended to denote any roof which includes an inclined portion which slopes downwardly from a ridge extending along its upper edge.

When carrying out maintenance work on roofs, safety regulations require that a handrail and toeboard should be erected at the lower or open edge of the roof to avoid any risk of persons or objects falling from the roof. However, in many cases the time needed to erect the scaffolding is far in excess of that which is necessary to carry out the repair to the roof. As a result workmen often ignore the safety regulations and perform roofing operations without a correctly positioned scaffolding.

When work is being carried out on a ridge roof there is always the added danger that tools or materials, e.g. slates, may be dropped and fall from the open edge of the roof risking injury to people or damage to property located below.

The time taken to erect and dismantle existing scaffold systems means that even relatively minor repairs can be expensive to complete, due to the labour costs, and the systems themselves are expensive to purchase which provides further deterrent against their use.

The present invention aims at a solution to the problems mentioned above and accordingly there is provided a roof scaffolding comprising a pair of similar elongate leg members for mounting on the roof parallel to each other and spaced apart along the roof by a predetermined distance, each leg member having attachment means at one end thereof for engaging over a ridge of the roof to attach the member securely to the roof, a support member pivoted to each leg member at an adjustable distance from said attachment means, bracing means interconnecting the support member and the leg member and adjustable to support the support member in a substantially upright position, and a hand rail and a toe board releasably mountable between the support members of the two leg members and arranged to be supported thereby adjacent an open edge of the roof with a lower edge of the toe board close to the roof surface and the handrail located substantially vertically above the toe board.

The scaffolding of the invention is easy to assemble in position on a roof and the time required is small. The handrail ensures that safety regulations are complied with and the toe board provides adequate security against articles falling from the roof edge. Furthermore, the leg members may be positioned far enough apart to leave between them a large expanse of roof on which repair work can be carried out without any positional adjustments to the scaffolding.

A better understanding of the invention will be

had from the following detailed description, reference being made to the accompanying drawings, in which:—

Figure 1 is a perspective view showing the scaffolding erected on a roof;

Figure 2 is an end view of the lower part of the scaffolding shown in Figure 1;

Figure 3 is a partial front elevation of one end of the scaffolding shown in Figure 1;

Figure 4 is a perspective view showing a second embodiment of the invention;

Figure 5 shows a first modification for the scaffolding of Figure 4, and

Figure 6 shows a second modification for the scaffolding of Figure 4.

The roof scaffolding illustrated in Figures 1 to 3 comprises a pair of telescopic leg poles 1 having crooks or cripples 2 fastened to their upper ends for engagement over the roof ridge to support the scaffolding. A stanchion post 3 is pivoted to each pole 1 by an L-shaped bracket 4, the poles 1 being adjustable in length for positioning the pivots adjacent the lower edge of the roof as shown. A strut 5 is connected between each stanchion 3 and leg 1 and its effective length is adjustable to hold the stanchion in substantially upright position. As shown in Figure 1, the strut 5 is pivoted at one end to the leg and is provided with a series of spaced holes through any selected one of which a toggle pin may be passed to connect it to the stanchion. The effective length could of course be made adjustable in other ways, e.g. by attaching it to different points on the leg pole or by making it telescopic.

Connected between the two stanchions 3 is a handrail 6 in the form of a rectangular frame. The fastenings between the handrail and stanchions are releasable and in the illustrated embodiment take the form of pins fixed to the handrail and engaged in eyes carried by the stanchions. Other types of releasable fastener could of course be used with equal effect.

A toeboard 7 is also connected between the stanchions and is positioned at their lower ends. The toeboard lies vertically and is attached releasably to the stanchions e.g. by bolts or toggle pins 8. A second board 9 has an outer edge hinged to board 7 adjacent its lower edge, and its inner edge is adapted to rest on the upper surface of the roof.

In use the end units consisting of the leg poles 1, stanchions 3 and struts 5 are adjusted in position on the roof.

The handrail 6 and boards 7, 9 are then lifted into position and fastened to the stanchions. The scaffolding is easily erected in this way and the operation may be completed in a matter of minutes.

The distance between the leg poles 1 may be of the order of 3—4 metres so that a large area of roof is accessible for repair in the protected region. Furthermore this entire area is accessible since the board 9 can be lifted up due to its hinge mounting to expose the roof surface as well as the guttering beneath it. Obstacles, such as roof-lights, or

windows, present no difficulty since they are easily straddled by locating the leg poles on opposite sides.

Positional changes of the scaffolding will not usually be very frequent, but could be made easier to perform by attaching the handrail 6, and possibly protective boards 7, 9, to the stanchions 3 in a manner allowing them to be advanced by sliding or rotational movement from one side of a stanchion to the other. In this way the scaffolding could easily be made to traverse the length of the roof in a series of steps.

Further modifications to the scaffolding are possible and will occur to skilled readers. For example, the leg poles may be provided with wheels at the upper ends to facilitate their mounting on the roof, and side stabilisers could be attached to the stanchions to hold them up to permit one man erection or assembly of the handrails before the struts 5 are adjusted.

The scaffolding may be light-weight, especially if the bar-like elements are tubular metal, and therefore easy to handle. When dismantled and collapsed it is also very convenient for transportation. In use the handrail 6 and toeboard 7 ensure proper safety for workmen against falling from the roof, and the boards 7, 9 will prevent articles sliding down and falling from the roof.

An alternative form of scaffolding embodying the invention is shown in Figure 4. It comprises a pair of leg poles 11 each having attached to its upper end a ridge hook member 12. Each hook member includes a reinforcing strut 13 and a cross-bar 14 at its free end. The cross-bars 14 may be fitted with sleeves of rubber or plastic material to improve their grip against a roof or wall surface. The hook members are connected releasably to the ends of the poles 11 by sleeves 15 and clamping screws, but other forms of connection are possible. Making the hook members 12 detachable from the poles 11 is not only convenient for transportation, but it also facilitates use of the scaffolding on flat roofs when the hook members are not needed. Shown carried on each hook member are a pair of wheels 16 for use during erection of the scaffolding and a support pad 17 through which the upper end of the leg poles rests on the roof. The wheels 16 and pad 17 could instead be carried by the pole 11, if required. The pad 17 is pivoted to a first collar fitted to the hook member and the wheel axle is fixed to a second collar. The wheels 16 allow the leg members, in inverted position, to be pushed up over a roof from the lower edge, after which the pole is turned over to engage the hook over the ridge and bring the pad 17 to rest against the roof surface.

The lower end of each pole 11 is received in a tube 18 which is slidable to and fro along the pole 11 to adjust the effective length of the pole. The tube 18 forms part of a stanchion support assembly and carries a connection sleeve 19 having clamping screws by means of which the tube, and hence the stanchion assembly, may be fixed in the adjusted position along the pole 11.

The tube 18 is fitted with a first collar 20 to which is pivoted a support pad 21 of the same form as pad 17, a second collar 22 to which is pivoted a stanchion socket support member 23, and a third collar 24 which is adjustable in position along the tube 18, the collar 24 being coupled to the upper end of the socket support member 23 by a pivoted strut 25 whereby the member 23 is adjustable to a substantially upright position whatever the pitch angle of the roof on which the scaffolding is assembled. The member 23 mounts a pair of socket tubes 26 at its opposite sides.

In use, the leg poles 11 with their hook members 12 and stanchion support assemblies attached, are mounted on the roof as illustrated at a predetermined distance apart and with the socket support members 23 substantially upright and located adjacent the roof edge. A handrail and toeboard assembly 27 is then mounted in position. This unit comprises a tubular handrail 28, end posts 29, a sheet metal toeboard 30 welded to and interconnecting the lower ends of the posts 29, and reinforcing bars 31. The unit also includes supporting stanchions 32 each fastened to the handrail 28 and the adjacent post 29. The stanchions are shorter than the posts 29 and their lower ends are adapted to fit the socket tubes 26 of the socket support members 23 for the handrail and toeboard to be supported in substantially upright position adjacent the open edge of the roof and with the lower edge of the toeboard 30 close to the roof surface.

The stanchion support assembly of each leg member is capable of supporting the adjacent ends of two handrail and toeboard units 27, the two socket tubes 26 receiving the respective stanchions. Thus, if a series of leg members are suitably spaced apart along a roof it is possible to erect a safety handrail and toeboard structure extending essentially continuously along the length of the open edge of the roof.

In order to provide protection at the gable end of the roof the leg member nearest that edge may be fitted with a rail 33. Conveniently one support post 34 for rail 33 is releasably connected to the upper end of the socket support member 23 and another support post 35 is connected releasably to a sleeve fitted to the hook member 12.

The scaffolding of Figure 4 has all the advantages of that shown in Figures 1 to 3, being easy and quick to erect and dismantle while ensuring safety to workmen and against falling tools and materials at the free edge of the roof.

In Figure 5 there is shown schematically a modification which enables a dormer window to be spanned. The leg pole 11 with hook member 12, but with the stanchion support assembly detached, is positioned to extend from the roof ridge and over the dormer roof. Connected to the projecting end of the pole 11 by a swivel coupling 35 is a pole 36 having fixed at its lower end a stanchion support member 37 of substantially the same form as member 23 and including a pair of socket tubes 26 for supporting two handrail and toeboard units 27.

Another modification is shown in Figure 6 and is adapted to allow safe access to the eaves of the roof. The tube 18 of each stanchion support assembly carries an extra collar 38 at its outer end, and this collar mounts a transverse pin 39. A generally L-shaped frame has an upright member 40 with a pair of hooks 41 fastened to its upper end and arranged to engage over the pin on either side of tube 18. The member 40 is provided also with an adjustable spacer 42 for abutting against the wall to maintain the member substantially vertical. The horizontal member 43 of the frame provides shoulders 44 along its lateral edges for supporting the ends of scaffold boards, and at its outer end supports a socket tube 45 for mounting one end of a handrail unit 46 which may be the same as the unit 27 described above. When the scaffold leg members are each fitted with a frame 40—45 it becomes possible to erect a continuous working platform, with protective handrail on the open side, to provide easy and safe access to the roof eaves.

Other modifications are possible within the scope of the invention and will occur to readers skilled in the art.

CLAIMS

1. A roof scaffolding comprising a pair of similar elongate leg members for mounting on the roof parallel to each other end spaced apart along the roof by a predetermined distance, each leg member having attachment means at one end thereof for engaging over a ridge of the roof to attach the member securely to the roof, a support member pivoted to each leg member at an adjustable distance from said attachment means, bracing means interconnecting the support member and the leg member and adjustable to support the support member in a substantially upright position, and a handrail and a toeboard releasably mountable between the support members of the two leg members and arranged to be supported thereby adjacent an open edge of the roof with a lower edge of the toeboard close to the roof surface and the handrail located substantially vertically above the toeboard.

2. A roof scaffolding according to claim 1, wherein each leg member includes a pole and a tubular element telescoped over the pole and adjustable therealong, the support member being pivoted to the tubular element and said bracing means being connected between the support member and tubular element.

3. A roof scaffolding according to claim 3, wherein the bracing means comprises a strut connected pivotally to the support member and to the tubular element.

4. A roof scaffolding according to claim 3, wherein one end of the strut is adjustable in position along the tubular element for adjusting the support member to the upright position.

5. A roof scaffolding according to any one of

claims 1 to 4, wherein the attachment means of each leg member comprises a hook device for engaging over the roof ridge.

6. A roof scaffolding according to any one of claims 1 to 6, wherein the leg members are provided with wheels for use in mounting the leg members on a roof.

7. A scaffolding according to claim 5, wherein the hook device is attached releasably to the leg member.

8. A roof scaffolding according to any one of claims 1 to 6, wherein the support members are stanchion posts, the handrail and toeboard being separately mountable between the posts.

9. A roof scaffolding according to any one of claims 1 to 6 or 8, wherein the toeboard includes a first board arranged to be supported substantially vertically, and a second board hinged to the lower edge of the first board and arranged to rest with its free edge against the roof.

10. A roof scaffolding according to any one of claims 1 to 7, wherein the handrail and toeboard are combined in a single unit.

11. A roof scaffolding according to claim 10, wherein the handrail and toeboard unit includes a stanchion post at each end thereof, and the support member pivoted to each leg member comprises coupling means to engage and support the lower end of a stanchion post.

12. A roof scaffolding according to claim 11, wherein said coupling means comprises a socket to receive a lower end portion of the stanchion post.

13. A roof scaffolding according to any one of claims 1 to 7 or 10 to 12, wherein the support member pivoted each leg member includes means for supporting a handrail and a toeboard on each side of said support member.

14. A roof scaffolding according to any one of claims 1 to 7 or 10 to 13, wherein each leg member is provided with pad means through which the leg members rests on a roof.

15. A roof scaffolding according to any one of claims 1 to 7 or 10 to 14, wherein a generally L-shaped frame is provided and is releasably attachable to the lower end of each leg member to be suspended therefrom adjacent the open edge of the roof, the horizontal member of the frame being arranged to support one end of a scaffold board and one end of a handrail.

16. A roof scaffolding according to any one of claims 1 to 7 or 10 to 14, wherein at least one leg member supports a handrail located above the leg member and substantially parallel thereto for providing protection at the end of a roof.

17. A roof scaffolding substantially as herein described with reference to Figures 1 to 3 of the accompanying drawings.

18. A roof scaffolding substantially as herein described with reference to Figure 4, of Figure 4 as modified according to Figure 5 or Figure 6 of the accompanying drawings.